

MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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INTRODUCTION.

The MONTHLY WEATHER REVIEW for December, 1899, is based on reports from about 3,044 stations furnished by paid and voluntary observers, classified as follows: regular stations of the Weather Bureau, 158; West Indian service stations, 12; special river stations, 132; special rainfall stations, 48; voluntary observers of the Weather Bureau, 2,498; Army post hospital reports, 27; United States Life-Saving Service, 14; Southern Pacific Railway Company, 96; Canadian Meteorological Service, 32; Mexican Telegraphic Service, 20; Mexican voluntary stations, 7. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Hawaiian Government Survey, Honolulu; Senor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Señor A. M. Chaves, Director-General of Mexican Telegraphs; Mr. Maxwell Hall,

Government Meteorologist, Kingston, Jamaica; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; and Capt. J. E. Craig, Hydrographer, United States Navy.

The REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local meridian is mentioned.

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

On December 1 an area of high barometer appeared on the north Pacific coast. This high area marked a change in the weather conditions which had attended a rapid succession of areas of low barometer from the North Pacific Ocean during the preceding three weeks and inaugurated a period of colder weather, which was experienced first in the Northwestern, then in the Central, and by the night of the 4th in the Atlantic and Southern States.

These changes were first announced in the general forecast of the evening of the 1st, and on the morning of the 2d a special forecast was made of several days of cold, wintry weather for the middle and northern Rocky Mountain regions.

The anticipated cold weather overspread the Western and Northwestern States during the day and night of the 3d. On the morning of the 4th a special bulletin on the cold weather was issued, which contained a forecast that during the night of the 4th the temperature would fall to about 20° in the Middle Atlantic States, that heavy frost would occur southward to the Gulf and south Atlantic coast lines, and that after the 5th the weather would moderate over the eastern half of the country. This forecast was verified in detail.

On the 14th stockmen in Idaho, and in Oregon and Washington east of the Cascades, were warned of a period of unusually low temperature. On the morning of the 15th special warnings of heavy snow and unusual cold were telegraphed

to the States of the middle and northern Rocky Mountain and middle and northern Plateau regions.

During the night of the 15th heavy snow fell in Idaho, northern Utah, and elsewhere in the middle and northern Rocky Mountain districts; in Colorado a heavy snow and wind storm caused a blockade of railroads along the Arkansas-Platte Divide, and very low temperature continued several days in the Western and Northwestern States.

On the 14th special warnings of high northerly winds and freezing temperature were sent to points on the west coast of the Gulf of Mexico, and a general forecast was issued announcing several days of low temperature east of the Mississippi River.

Low temperature prevailed east of the Rocky Mountains from the 24th until the close of the month, a minimum of 30° occurring at Jacksonville, Fla., the morning of the 30th.

In the Gulf and extreme south Atlantic districts, where crops are subject to damage by frost during the winter months, the frosts of December were accurately forecast for periods of twenty-four to thirty-six hours in advance. Local interests were warned of the frost in northern Florida on the 30th by the official in charge of the Weather Bureau office at Jacksonville.

The severest storm of the month crossed the Great Lakes during the 11th and 12th. All lake ports and shipping in-